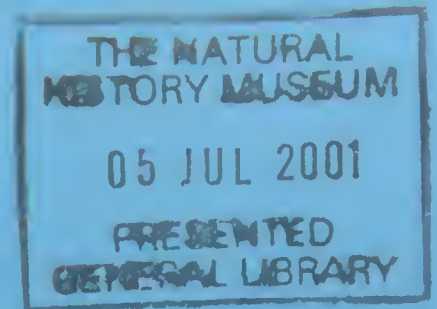


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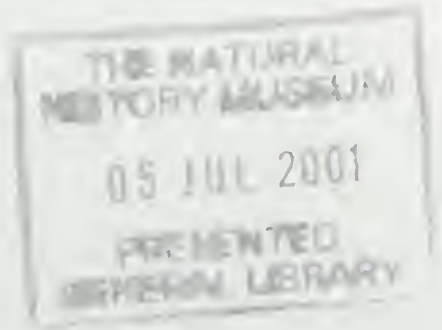
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2000

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## THE SALMON OF THE RIVER GRYFE, RENFREWSHIRE

By HUGH A. HILLAN

*Renfrewshire Natural History Society*

### Introduction

After many years of unremitting work by the Clyde River Purification Board, by the early 1980s the results were beginning to show, with numerous records of several species of freshwater fishes far up the river right into the centre of Glasgow (C.R.P.B., 1980-86). Far and away the most popularly dramatic result, however, was the return of the Salmon *Salmo salar* to the River Clyde, after an absence of nearly 150 years. After some years of increasingly suspected attempts, and possibly unnoticed autumn runs, success was finally recorded in 1983, with a major autumn run which received widespread coverage in the daily press and was even the subject of a television documentary. At the time, large crowds of people went to see the Salmon jumping at Blantyre Mill weir, and a few, more enthusiastic than the rest, were actually fined for illegal Salmon fishing (!) - a situation which would have been regarded with incredulity even a few years previously. Eventually the return of the Salmon to the Clyde was properly recorded in several scientific journals (e.g. Gibson, 1986), and is now well established and well known.

What may be not so well known, however, is that for some years previously Salmon had been recorded from the River Gryfe in Renfrewshire, probably assisted by an introduction carried out in 1963.

### History

Until the 1960s there had been little chance of Salmon surviving in the Clyde much above where the estuary narrows upstream from Dumbarton Rock. Industrial and domestic pollution had increased in the river over the previous hundred years or so to the extent that the middle reaches of the river were more or less dead; indeed a journey across one of the chain ferries at times of low water could be a decidedly unpleasant experience.

About the same time as Clyde pollution eased, gross pollution of the River Gryfe below Bridge of Weir also improved, due to more efficient effluent handling by local industry. In fact, the Gryfe became fairly clean from around the mid-1970s. Previous to this there had been a stretch from the main road at Bridge of

Weir to below Crosslee bridge where aquatic life was confined to bloodworms, tubifex and pond snails. Oddly enough we still had migratory fish ascending in the form of Eels *Anguilla anguilla*, which says a lot about their grip on life.

### Artificial Stocking

When some signs of a reduction in pollution levels were becoming apparent, Mr. Neil Kennedy, proprietor of the old-established trout hatchery at Kilmacolm, decided to attempt the re-introduction of Salmon to the River Gryfe. In 1963 he obtained 10,000 Salmon fry and 10,000 Sea Trout fry from the Ardgay hatchery in Ross-shire, and carefully introduced the 1½in. long fish into the River Gryfe where it flows between the Kilmacolm trout hatchery and Quarrier's Homes. The fry were from River Helmsdale stock, fish known to be hardy and which attain considerable weights. The cost of the fry was £100, a modest amount in today's terms but a fairly substantial outlay at the time.

Although the Gryfe was still considerably polluted around Bridge of Weir, Mr. Kennedy "thought if the fry survived and grew into parr, then into smolts, they could get through the pollution in a spate. I wanted to see if they would survive and return to their own river" (Freeman, 1983).

### First Return

The first recorded return was in 1969, when a Salmon was seen at Bridge of Weir leather works. It was captured alive by tannery staff, brought to Mr. Kennedy in a barrel, and survived at the Kilmacolm hatchery for three days. Mr. Kennedy considered that "the fish had matured in the Gryfe, navigated downstream to the confluence with the Black Cart, and from there to the Clyde at Inchinnan. As a fully mature Salmon it had return to the Gryfe to spawn" (Freeman, 1983), which seemed a very reasonable conclusion.

### Subsequent Events

The 1969 return encouraged Mr. Kennedy's son, Mr. Donald Kennedy - who now owned the Kilmacolm trout farm, to continue the stocking. At irregular intervals over the years he purchased additional quantities of Salmon fry which he introduced to the river, and returning adult fish were soon being recorded. These were few in number at first, and occasional years went past without any being reported, although this did not mean that they were not there. Gradually, however,

Salmon became a regular feature of river life, and by the mid-1980s were returning in some numbers from mid-July onwards each year. They were prevented from moving in quantity above Bridge of Weir by a daunting leap out of two potholes in the middle of the village. Close above stood a metre-high vertical stone weir, with little depth of water below to allow fish to leap over it, except in times of full spate. It was not unusual to see mature fish, which had leapt from the pots, lying with their backs and tails exposed and their noses pressed against the weir (Hillan, 1996). Steps were taken by the local angling club to overcome these difficulties, thus allowing the adult Salmon access to the upper river for spawning.

### **Fish Catches**

Salmon cease feeding before moving to fresh water. Happily for anglers, some of these fish, while not needing to consume food, do not altogether lose their feeding instinct, and given certain conditions will pursue and strike at lures of one sort or another. For the past ten years or so anglers on the river have been required to declare catches, so that their clubs can provide statistics to the Scottish Office. On the Bridge of Weir club water in the middle reach of the river, which stretches on both banks from just below Bridge of Weir to just below Kilmacolm, catches have risen over the past twenty years, but seem to have levelled out to around sixty fish a year, although this figure can vary widely from year to year. Fish catches help in assessing overall stock levels which are of more interest to naturalists than numbers of fish caught. However, certain difficulties arise. It should be noted that there are two other clubs on the river, and opinions vary among authorities concerning the proportion of stocks taken by angling. It is generally accepted that the majority of fish are not 'takers'. High angling pressures do not have much effect in reducing subsequent runs. Since there is a finite number of 'takers', angling pressure only tends to reduce individual catches.

What then of the future? Shall runs build up until you can walk across the river on the backs of fish at Kilmacolm? Evidently not! Returns already indicate that stocks have levelled out; annual catch variations being explained by factors such as late runs resulting from low water before the Salmon season ends on 31st October.

### **Factors Affecting Salmon Stock Levels**

What then limits Salmon stocks on a river such as the Gryfe? It is probable that 'non-takers' could restock the river many times over each year. Factors such as available spawning area and weather conditions affect spawning success, but it can

be assumed that except in exceptional years far more fish are hatched than are necessary for restocking. After hatching, we find predation, pollution and feeding-competition taking their toll. Pollution can mean total wipe-out of all but sea-going stocks. Direct predation can be severe but can result in increased food availability for survivors, although this may not all be converted into surviving Salmon parr because of competition for the feed resource by other fish species, as well as predatory insects, birds and so on.

Losses occur because of predation and disease at each stage of a Salmon's life, - egg, alevin, parr, smolt or adult, - but there is an inbuilt surplus at each stage so that adult populations are more than sufficient to restock. The main factor which inhibits spiralling stocks is food availability at the juvenile stage. This varies from river to river, and it is evident that even given perfect conditions at sea you can never get back more adults than leave the river as smolts. How can you increase available food in the river? For the past few years an ongoing programme of pool building has been taking place in the middle Gryfe, and it will be interesting to see if overall fish stocks increase as a result. Collation of returns for the whole river and studies of changes in food availability over a number of years are indicated.

### **Present-day**

From mid-August onwards naturalists wishing to see Gryfe Salmon should visit the Water Board weir upstream of the old railway viaduct in Bridge of Weir. Access is via the waste ground formerly occupied by Gryfe Tannery Ltd adjacent to the main road bridge. You may continue up-river to the Weir Linn pool at the bottom of Quarrier's Village. There is a reasonable chance of seeing fish at either location or somewhere in between. A convenient angler's path and stiles extend along the left bank of the river.

### **The River-bank Rule**

Remember the rule: face across the river, and if the water is flowing to the left you are on the left bank.

### **References**

Clyde River Purification Board. (1980-86). *Annual Reports, 1979-1985*. Glasgow and East Kilbride : C.R.P.B.



- Freeman, J. (1983). Another clue in riddle of Salmon's return to Clyde. *Glasgow Herald*, 17th November 1983.
- Gibson, J.A. (1986). Recent changes in the status of some Clyde vertebrates. *Proceedings of the Royal Society of Edinburgh*, 90B: 451-467.
- Hillan, H.A. (1996). Factors affecting Salmon stock levels in the River Gryfe. *Renfrewshire Natural History Society Newsletter*, April 1996: 3-4.

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## OBSERVATIONS ON *Bombus soroeensis* (Fabr.) (Hym., Apidae) IN NORTHERN SCOTLAND

By MURDO A. MACDONALD

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### Introduction

*Bombus soroeensis* (Fabr.) has long been regarded as scarce and local in Britain (Alford, 1972; Prys-Jones and Corbet, 1987; Archer, 1998). In Scotland, the *Atlas of the Bumblebees of the British Isles* (Alford, 1980) records it in seventeen squares post-1960 north of the Firth of Tay, including one record from Shetland. This paper is based on the analysis of 125 records from northern Scotland between 1990 and 2000, and is intended to add to the little knowledge which exists on this species in Britain. This lack of knowledge justifies the presentation of data which are in many ways incomplete, and conclusions which must always be regarded as provisional. Bee names follow Prys-Jones and Corbet (1987).

### Methods

Details of all my encounters with *B. soroeensis* were recorded, including locality characteristics, number, sex and caste of the bees, and plants used as forage. A few records from private collections were included, though in these cases the specimens were checked by me; these lacked some of the ancillary information. No systematic surveys were done, so there is no assurance that the sample is representative of the species even in northern Scotland.

Weather data were collected at Strathpeffer (NH478575). Monthly precipitation is known from January 1989, and extreme monthly temperatures from January 1991.

A 'record' here refers to an encounter with any number of bees at one locality on one date.

## RESULTS

### Identification

I am certain that problems of field recognition are responsible for much of the apparent scarcity of *soroeensis*. My own comments on its recognition follow. The

female *soroensis* in the field is most likely to be confused with the common *B. lucorum*. Both are 2-banded white-tailed bees found in similar habitats. The field character emphasised in books (e.g. Prys-Jones and Corbet, 1987) is the broken yellow band on tergite 2, and in some queens this is very obvious indeed. In others, and in most workers, the break is much less apparent, and can easily be missed. In such specimens the break is most obvious when the band is viewed obliquely from the front, when it shows as a very narrow dark line through the yellow. *B. lucorum* and *B. magnus* can show a broken band as a result of wear, so this character cannot be used reliably on its own.

In the hand, I found the mandible character initially very difficult to determine (*soroensis* lacks the oblique groove found in *lucorum*), and I tended to rely on the sting sheath (inner projections notched in *lucorum*, entire in *soroensis*). After practice, I have become confident at recognizing the absence of the groove with a x15 lens and adequate lighting. By the nature of things, it is more difficult to be sure that the groove is absent than to recognize it as present, hence the need for considerable experience before this feature can be used with confidence.

Once certain identification has been established, it is possible to recognize female *soroensis* in the field from its 'jizz'. I have not been able to define all the differences I recognize between it and *lucorum* in the field, but they have different ways of holding themselves when foraging, so that *soroensis* workers often appear more like *B. pratorum*, the white tail being held somewhat out of sight. Also, though this is not a constant difference, *soroensis* females tend to show a greater contrast than *lucorum* between the dark yellow of the collar and the paler yellow on the abdomen. The longer tongue of queens can be noticeable, sometimes giving an appearance approaching that of *B. hortorum*. Field records should always be confirmed with anatomical examination of at least one insect.

Males are usually clearly distinct from those of *lucorum*, and the long hairs on the hind metatarsus are easy to detect against the light without a lens. However, the yellower *B. jonellus* has similar hairs and can be found in the same habitats, so I recommend that the genital capsule is examined. The two are very different, and only a quick check with a lens is needed once the key differences are known (*soroensis* sagittae broad and bending outward, *jonellus* narrow and bending inward; see diagrams in Prys-Jones and Corbet, 1987). Males of both species can have off-white tails, *soroensis* sometimes dark red-brown approaching the colour of *B. terrestris*.

#### Distribution and Habitat

I have found *soroensis* in forty 10km squares in Highland and Grampian Regions since 1990 (Figure 1). All but three of these are additions to the post-

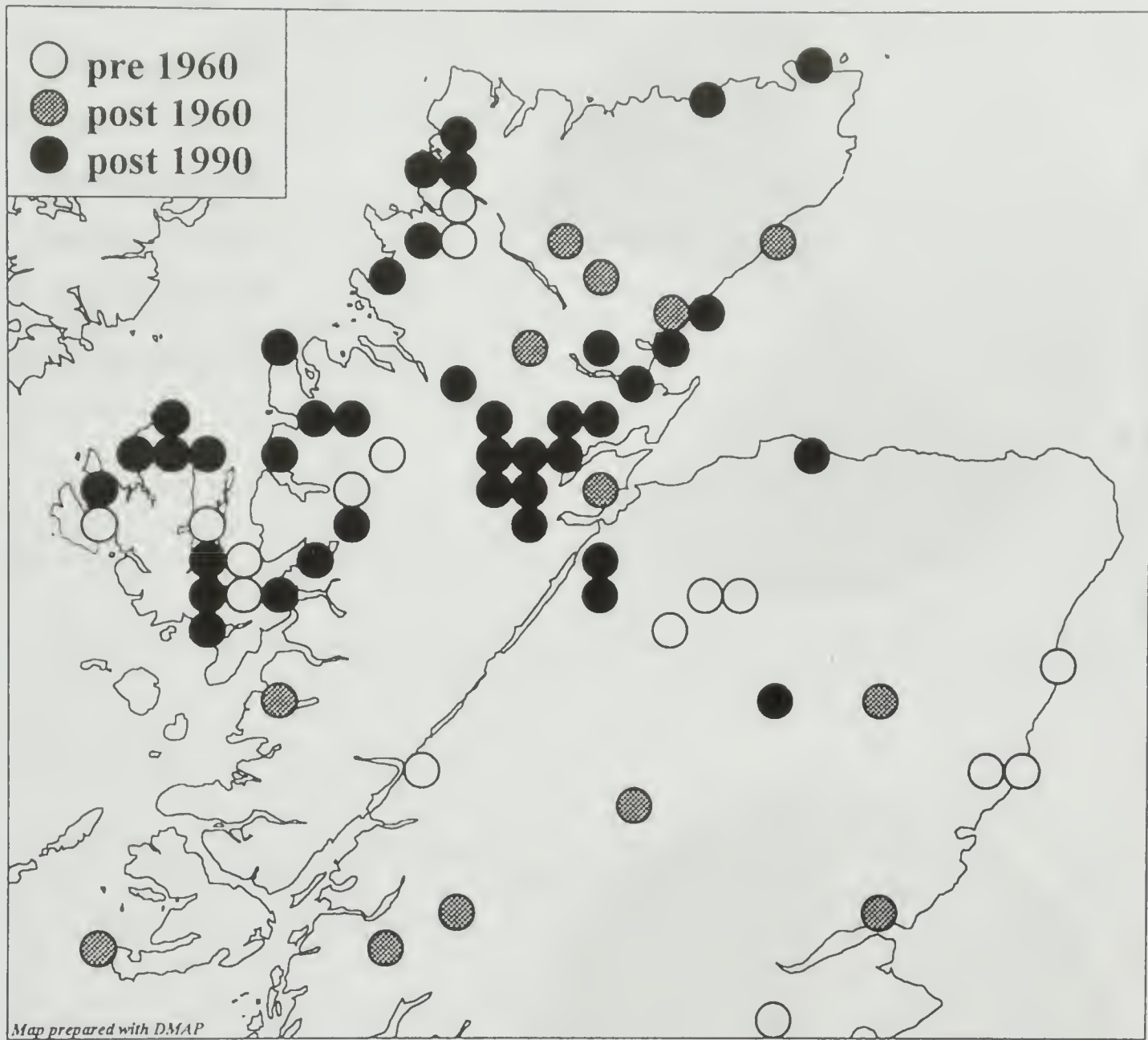
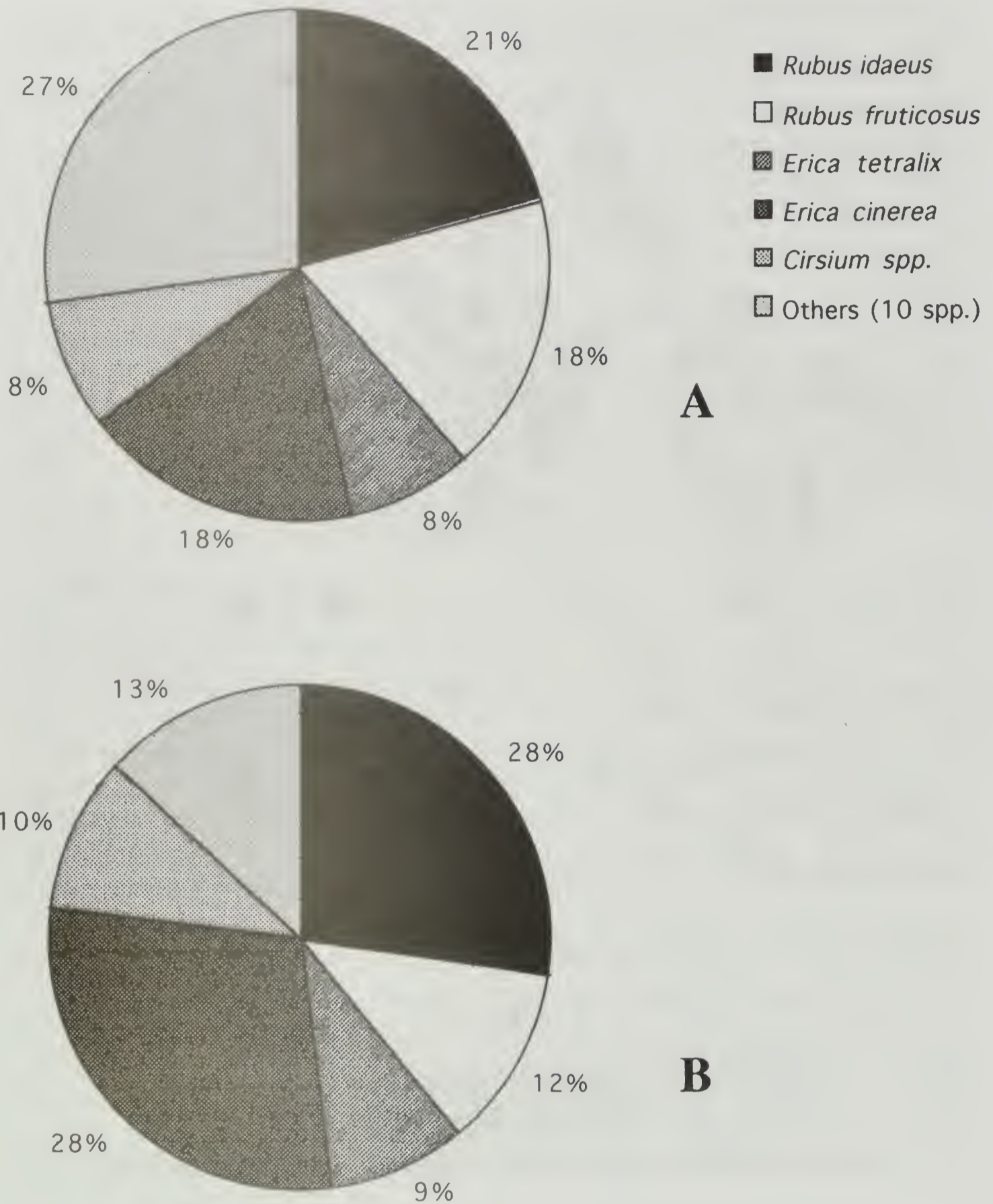


Figure 1

Distribution of *Bombus soroensis* in northern Scotland  
based on 10km squares

Alford (1980) also shows one post-1960 square in Shetland (HU48).



**Figure 2**

**Plants used as forage by queen *Bombus soroensis***

A: Based on number of records (N=62).

B: Based on number of insects (N=170).

The unspecified forage species were *Arctium minus*, *Calluna vulgaris*, *Campanula latifolia*, *Hyacinthoides non-scripta*, *Myosotis* sp., *Salvia officinalis*, *Symphoricarpos albus*, *Thymus polytrichus*, *Trifolium repens*, and *Weigela* sp.

1960 distribution in Alford's Atlas, with extremes in Skye, Braemar and north-east Caithness. I would expect *soroeensis* to occur in suitable habitats throughout the north of Scotland. Many of the apparent gaps in distribution must reflect the absence of aware recorders rather than of bees.

For fifty localities habitats are known, so that a crude classification can be attempted. Of these, 21 were on open moorland; often several km from trees, and 17 in habitats which can generally be classed as forest edge (including large clearings, rides, a garden adjacent to a forest, and a broad riverside meadow with tall vegetation a road's width from forest). Five were in tall roadside vegetation (hedge and thicket) and two on machair or dune meadow.

One queen was seen visiting a hole at the base of a tussock of grass at the edge of a forest road at 197m altitude on 28th June 1992. This is the only sign of a nest that I have found, and unfortunately I was unable to continue observations on it.

Altitudes ranged from 5.0 to 325m above sea level, the mean of 50 sites being 87m.

### Abundance

*B. soroeensis* has always appeared to be irregular in numbers from year to year. In some years workers have been common in my garden in autumn, while in others I have recorded none. In June 1992 queens were very common close to my house, with a peak count of 15-20 in a distance of 500m in the adjacent forest. I expected to find correspondingly large numbers of workers, but in fact recorded only a few on one day. Rainfall at Strathpeffer in August and September 1992, when workers should be active, was very heavy (233.6mm compared with a mean for 1989-99 of 135.4mm, with the August fall 43% higher than in any other year). Extreme temperatures in both months were also lower in 1992 than in any other year from 1991 to 1999, but a causal link with the paucity of workers is conjecture.

*B. soroeensis* was exceptionally common in summer 2000. I began to find very high densities of queens on moorland on 1st July in NH35, where it was the most abundant bee on *Erica* at 200-300m. It was common over most of the area from Skye, Wester Ross, Sutherland, Caithness and East Ross throughout the month. Densities reached at least 10/ha, and it frequently outnumbered *B. jonellus* on moorland by a factor of up to five. During July 2000 I had identified at least 95 individuals in 25 10km squares. Of these, only eight were carrying pollen loads, suggesting that very few were actively engaged in establishing nests at that stage. The exceptional numbers in 2000 are emphasised by the fact that in July in the ten

years between 1990 and 1999 I had seen in total only 28 queens in fourteen squares. The phenomenon suggested a mass immigration of queens (there was a conspicuous influx of Red Admiral *Vanessa atalanta* and Painted Lady *Cynthia cardui* butterflies at the same time), since there was no evidence of high local productivity during 1999, but again this is speculation.

## Food

Figure 2 shows the plants which were visited by queens in June and July. *Rubus* and *Erica* spp. are important forage at this time. At least four queens on the riverbank at Braemar were feeding only at abundant Melancholy Thistle *Cirsium heterophyllum*, a plant which is not as common in the area where I have made most observations, and whose importance, at least locally, is probably under-represented in these data. Food records for workers are dominated by Borage *Borago officinalis*, since most were obtained in my garden where this plant was an irresistible attraction. Among native forage, only Heather *Calluna vulgaris* and Cross-leaved Heath *Erica tetralix* were recorded. I found males at *Calluna*, *E. tetralix*, Bell-heather *E. cinerea* and Devil's-bit Scabious *Succisa pratensis*, as well as on Shrubby Cinquefoil *Potentilla fruticosa* in the garden (one record at each). Teräs (1976) found evidence that *soroensis* queens, with their longer tongues, tended to feed at deeper flowers than did *lucorum*. I have found no evidence of this in Scotland, though the records at *Cirsium* may be an example.

## Phenology

Figure 3 shows the seasonal distribution of records of the different sexes and castes. In northern Scotland at least, *soroensis* is a very late bee, with queens establishing nests from mid-June to the end of July. This is substantially later than *B. lucorum*, queens of which are mostly confined to their nests by mid-June in the Highlands (personal observation). Workers are active from early August to mid-October and I have recorded them a few days later than any other species of bumblebee. The late queens include some old individuals with very worn wings, as well as fresh ones.

*B. soroensis* appears to be less affected by low temperatures than other lowland species. I have seen a worker foraging at 08.30h BST on 26th September 1991 in weak autumn sunshine when the air temperature was just 1.0° C.



From	10/5	30/5	19/6	9/7	29/7	18/8	7/9	27/9	17/10
To	29/5	18/6	8/7	28/7	17/8	6/9	26/9	16/10	5/11

*Calluna* flowering period

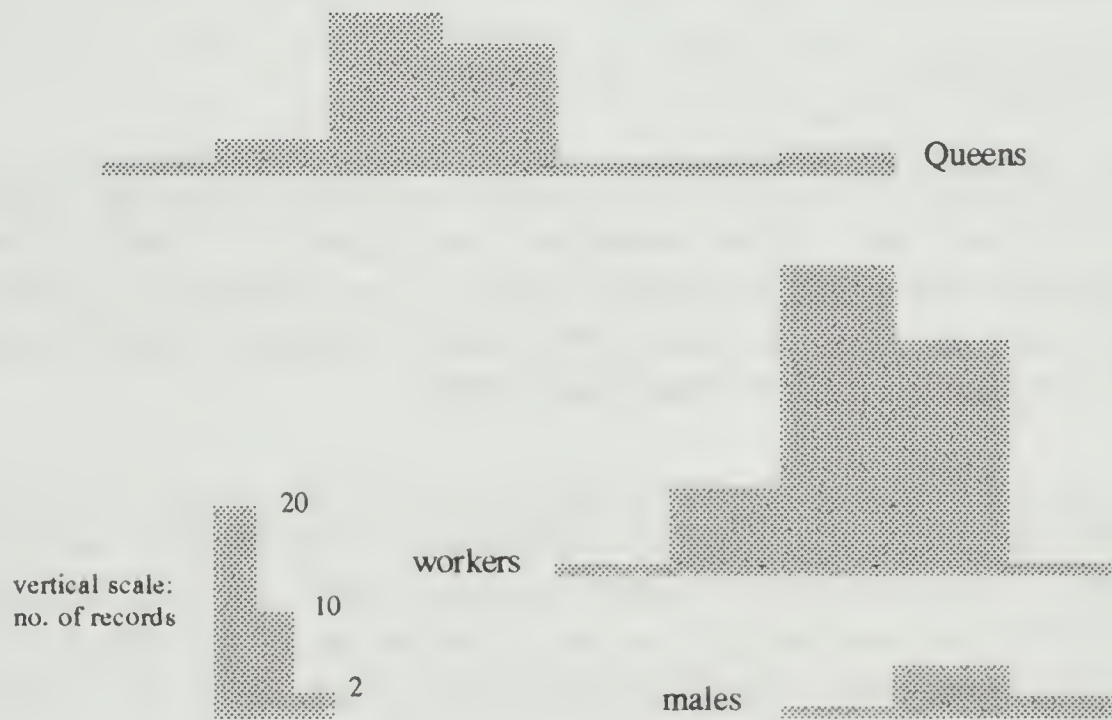


Figure 3

Seasonal distribution of records of *Bombus soroensis* in northern Scotland 1990-1999

Two records of females in early June (M. Edwards, pers. comm.) are included as queens.

## DISCUSSION

The observations suggest that *Bombus soroensis* is more widespread in the north of Scotland than has been generally understood, though it is usually present at low density. Conditions in the area may be marginal for its success, which would explain the low density, the large fluctuations in local population between years, and the anomaly of high queen density with near absence of workers in 1992. The population may depend on occasional mass influxes, as appeared to take place in 2000.

The late season of *soroensis* here may be adapted to the late flowering of *Calluna*, from late July to late September (see Figure 2). There is little other native forage around when the workers are active, and *Calluna* was always present in quantity close to where the bees were found. In this, it would be similar to *jonellus* on mainland Scotland (Macdonald, 2000).

The prospects for more detailed ecological work on the ecology of *soroensis* in northern Scotland are poor, given the difficulties of identification and the usually low density, but casual observers should be aware of the possibility that *soroensis* is present there and elsewhere in the country sometimes in abundance, and should be especially suspicious of late-foraging queens which might be overlooked as *lucorum*.

## Acknowledgements

I am grateful to Dr. Philip Entwistle for access to records from his collection. Mr. Mike Edwards and Dr. Steven Falk provided useful comments on a draft of the paper.

## Summary

*Bombus soroensis* is a relatively scarce bumble-bee, which has probably been overlooked. A guide to identification is given. It tends to occur close to *Calluna* moorland, and at altitudes up to 325m. It may be at the edge of its ecological tolerance in northern Scotland, and may irrupt periodically into the north. Queens foraged to a great extent on *Erica* and *Rubus* spp. Workers and males fed on *Calluna* and *Erica* spp. The late season may be adapted to exploit the late-flowering *Calluna*.

## References

- Alford, D.V. (1972). Bumblebee distribution maps scheme. Guide to the British species. Part V. *Entomologists' Gazette*, 23: 17-24.
- Alford, D.V. (1980). *Atlas of the Bumblebees of the British Isles*. Cambridge: Institute of Terrestrial Ecology.
- Archer, M.E. (1998). Status and quality coding of species of aculeate Hymenoptera - Part 5: The social wasps and bees. *Bees, Wasps and Ants Recording Society Newsletter*, Autumn 1998: 13-14.
- Macdonald, M.A. (2000). Ecological observations on *Bombus jonellus* (Kirby) (Hym., Apidae) in northern Scotland. *Scottish Naturalist*, 112: 3-14.
- Prys-Jones, O.E. and Corbet, S.A. (1987). *Bumblebees*. Naturalists' Handbooks, No. 6. Cambridge: University Press.

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## WHAT TO DO FOR AN ADDER BITE

By J.A. GIBSON

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### Introduction

The Adder or Viper *Vipera berus* is the only naturally occurring venomous snake in the British Isles, and as such it sometimes causes an undue degree of concern and alarm amongst walkers in the Scottish countryside. It is widely distributed throughout Scotland, including some of the inner islands, and in many places of the Highlands it has long been known to be extremely common (e.g. Hinxman, 1902; Macintyre, 1924; Gibson and Colville, 1972; Gibson, 1976b and 1982).

### Distribution

The Adder occurs in all Scottish mainland counties, but is absent from the Outer Hebrides, Orkney and Shetland. This distribution is well known to all experienced Scottish naturalists, and has recently been confirmed by the latest national distribution Atlas (Arnold, 1995). As indicated above, in some parts of the Highlands of Scotland the Adder is particularly common; in lowland Scotland it is less common and distinctly local, but there can be marked differences in distribution between apparently closely related areas, so it is wise to assume that Adders are present in all mainland areas of Scotland. If you are unfamiliar with an area don't make any assumptions; ask. Particularly on the islands, make some enquiries first. For example, in the Clyde area the Adder is very common on Arran and Holy Island (Gibson, 1975 and 1980b) but is traditionally absent from Bute and the Cumbraes (Gibson 1976a and 1980a) and all the small Clyde islands (Gibson, 1976a and 1980b).

### Behaviour

There is no doubt that naturalists and holiday-makers in the Highlands of Scotland will certainly encounter the Adder, usually by accident, but there should be no real cause for alarm. To keep this in perspective, in Britain there have been many more deaths from bee and wasp stings (acute allergic reaction, - anaphylactic shock) than from Adder bites (Warrell, 1979); during the twenty-five years from 1950 to 1974 there was only one death from Adder-bite (in England) but during these years 66 people (61 in England and Wales, and five in Scotland) died from bee or wasp stings (Office of Population Censuses and Surveys, 1976).

Nevertheless, a bite from an Adder can sometimes be a serious matter, and it has to be admitted that for the ordinary person the Adder continues to have a fearsome, if somewhat undeserved, reputation.

Adders will not 'attack'. They are shy and retiring creatures which will avoid confrontation at all costs; "where the human race is concerned, the Adder is never the aggressor" (Morton, 1960). This is undoubtedly true, but Adders are timid and easily frightened, and if for any reason they believe themselves to be in danger and can't get away, they will naturally attempt to strike or bite in self-defence. No-one should ever attempt to handle, or even touch, an Adder unless one is very experienced; the speed of strike can be extremely fast, far faster than the average person would expect or could anticipate. Writing about the speed of the Adder's strike, Smith (1964) said "So quickly is the movement performed that the eye cannot follow it", which may be a slight exaggeration, but not much.

Even if one is very experienced it is extremely unwise to take any unnecessary risks. The late Dr. Norman Morrison, from Campbeltown, an established authority on the British Adder and author of the standard work on *The Life-Story of the Adder* (1924), used to allow Adders to crawl all over him, in order to demonstrate the inoffensive nature of the creatures. He did this many times at his public lectures, and in his autobiography *My Story* (1937) there is a photograph illustrating this. Unfortunately, during one demonstration an Adder unexpectedly took fright at something and bit Dr. Morrison; the effects of the bite kept him in hospital for over a week, and Dr. Morrison never again repeated the demonstration.

### **Precautions**

In Scotland, Adders usually emerge from hibernation around the end of March and begin to hibernate again by late September, but the dates may vary greatly, depending on local weather conditions. When walking in areas where Adders are prevalent, especially in dense cover, such as heather, one may occasionally accidentally frighten or even stand on an Adder, which would almost certainly lead to a strike, but if one is wearing really stout stockings, or preferably boots, there should be no real danger. Adders on the ground can seldom rear and strike higher than about 6.0 - 8.0 inches, and usually much less, so if one takes care to wear below-knee boots when walking through likely territory there should be no problems. Certainly children should always have their legs well protected. One should also always be cautious about rummaging about in heather where one cannot see clearly. More than one golfer has been bitten, or nearly bitten, on the hand when trying to find a golf-ball in the rough on an Argyll golf-course.

It is sometimes said that Adders do not like water, but this is completely untrue, and it is difficult to understand how such a false belief can ever have arisen in the first place. Adders, in fact, take to water very readily, swim extremely well, high on the water because of their light body-weight, and are regularly found in Highland lochans and tarns (e.g. Hinxman, 1902; Macintyre, 1924; Gibson and Colville, 1972). This is well known to all experienced naturalists, and going back 200 years, for example, there have been published accounts of Adders regularly swimming from island to island in Loch Lomond (Stuart, 1793; Colquhoun, 1878; Lumsden and Brown, 1895). Duncan Colville, doyen of Kintyre naturalists and sportsmen, once hooked an Adder when fly-fishing at a hill-loch in Kintyre, in the heart of Adder country; the Adder was not foul-hooked, so the assumption was that it took the fly in the normal way (Morrison, 1937). Since then, a few similar instances have been reported. Anyone wishing to swim in a Highland lochan should therefore be very aware of the possible dangers, and it is extremely foolhardy to walk around the edges of any lochan, or indeed anywhere else in such terrain, in bare feet.

Records of Adders in salt water are rare, but Adders have been seen swimming across West Loch Tarbert, north Kintyre, and Dr. Morrison lists even more remarkable records of Adders having been caught swimming between Arran and Kintyre (Morrison, 1929). It is always possible, however, that these Adders had been picked up by gulls and later dropped into the sea, or had been washed out to sea by strong river currents.

The size of Adders is often exaggerated, but the vast majority of adult Scottish Adders measure around eighteen inches, and specimens of up to two feet in length are uncommon. Larger specimens do occur, however. The Kintyre peninsula of Argyll has one of the highest populations of Adders in Scotland, and on 12th May 1934 the local newspaper, the *Campbeltown Courier*, in an attempt to settle a considerable local argument being conducted in its correspondence columns, offered a prize of one pound (a considerable sum in those days) to the first person who brought an Adder of 26 inches or more to the *Courier* office. The following week an anguished editorial said that the *Courier* office was rapidly becoming a depository for Adders, but several Adders of 26 inches were actually produced, plus one measuring 26½ inches (Gibson and Colville, 1972).

### **Some Incidents**

The circumstances under which people have been bitten by Adders can be enormously varied, and some accidents could hardly have been anticipated or avoided, as the following two instances demonstrate:

A well-trained countryside ranger ran to the aid of a hill-walker who had lost her footing and was in danger of falling down a steep rocky slope. He saved her from serious injury, but she came down to the ground, with the ranger's arm underneath her, on to an Adder which bit the ranger on the right wrist.

An experienced mountaineer was climbing an overhanging sandy cliff. He reached for a hand-hold above his head, and unfortunately grasped an unseen Adder basking in the sun. He was bitten on the left index finger.

At the other end of the scale we can find the simply ludicrous or bizarre; for example:

A party of young children found a hibernating Adder in March. They sat in a circle prodding it with twigs until the snake awoke from its torpor and bit the main aggressor, aged 5, on the hand (*British Medical Journal*, 1960(2): 375). No comment required.

#### **Adder Venom and its Effects**

The venom of the Adder, when expressed from the fangs, is a clear, yellow fluid. It crystallises rapidly on drying, and, if kept dry in a sealed tube, is said to retain its potency indefinitely. Experiments with the venom of the Australian Blacksnake *Pseudechis porphyriacus* showed that the venom was just as powerful after 40 years as it was when first expressed (Smith and Hindle, 1931). It is important to realise that Adder venom is effective only when it reaches the blood stream, so it can be swallowed with impunity, provided there are no abrasions in the mouth. This, however, should not be taken as encouragement to suck any wound (Proudfoot, 1994; but see later).

As an experienced Scottish naturalist with a particular interest in herpetology, who has lived in Adder country for well over seventy years, and as a Scottish country doctor of some fifty years' experience, who has treated, or seen the effects of, many Adder bites sustained in remote areas, it has been suggested to me that it might be helpful to set out the best procedure to follow for the benefit of those who may be bitten when they are some considerable distance away from medical help.

It cannot be too strongly emphasized, however, that the following notes are **entirely first-aid measures, designed to be applied in difficult or isolated circumstances, and bear no relationship whatever to medical treatment**



**which should be obtained as soon as possible from the nearest doctor or local hospital.** For emphasis, the above statement is printed in bold type. The best policy is to cover the bite with a clean dry dressing and a support bandage, keep the bitten part dependent and as immobile as possible, and get to the nearest doctor or hospital within thirty minutes. The other advice given here is intended for anyone in a situation where this is impossible, to support the patient in any interval before obtaining proper medical help.

Pursuing and killing the snake is not recommended, but if the snake has already been killed it should be taken to the hospital for identification. The snake, however, should not be handled directly even if it is dead. Decapitated head reactions can persist for up to an hour (Reid, 1976). This is not an 'old wives' tale'; many experienced naturalists have witnessed this, and "the bite from a decapitated snake can cause severe poisoning" (Proudfoot, 1994; also see Allen, 1902).

Before discussing first-aid treatment, however, it might be just as well to describe briefly the effect of Adder venom, and here one can hardly do better than quote the excellent summary given by Dr. Malcolm Smith (1964), which is fairly easily accessible:

"Viper venom is a powerful depressant of the heart, and if a sufficient dose is injected death ensues rapidly from cardiac failure. That is what happens when the Adder strikes at its normal prey such as lizards and mice, the size of the dose, in proportion to the size of the animal, being very large. The toxicity of a dose is in direct proportion to the body weight of the animal.

In man the symptoms vary enormously. They may almost be negligible or so severe as to cause death. The severity of the symptoms depends, probably, more on the size of the dose given than upon the health of the person at the time. A snake, when it bites, does not always inject the maximum dose of its venom. The gland may have been emptied by a previous bite, or the contraction of the muscle which forces the venom out of the gland may be weak. The correlation between dose and body weight is probably the reason why children, when bitten, suffer more severely than adults.

The majority of people are bitten on the extremities, usually the hand; after that the feet, ankle and calf of the leg. The effects of the venom are both local and general. The local symptoms are pain and swelling at the point of injection which, in severe cases, may extend rapidly up the whole limb and on to the body. The swelling may continue to increase for a day or more, after

which it gradually subsides. With severe swelling there is considerable discoloration of the tissues.

The general symptoms vary from a slight malaise to rapid collapse. There is vomiting, diarrhoea, giddiness, prostration, sometimes with loss of consciousness, although this does not persist. Shock, no doubt, aggravates the symptoms. In fatal cases there is a gradual weakening of the pulse and respiration, and finally death from heart failure [Also see Moore, 1988]. Death has been known to occur in six hours or may be delayed for as long as 60 hours.

Fatalities are rare in this country. Since the beginning of the present century only about 10 deaths [now 14 deaths during the past 100 years] following adder-bite have been recorded (see Morton, 1960). Almost all of these were of children who are undoubtedly more severely ill than adults. Although a considerable number of adder-bites produce quite serious effects, a very large number of cases are probably trivial and may not even be recorded".

The Adder is a timid and inoffensive creature, and its venom comes at the bottom of the world scale. Adder venom is not actually very toxic; the minimum lethal dose (M.L.D.) for a 600-gram Guinea Pig (*Cavia porcellus*) is 40 mg., as compared to the M.L.D. of a Russell's Viper *Vipera russelli* which is 1.0 mg. for a similar-sized Guinea Pig (*British Medical Journal*, 1960(2): 373; Minton and Minton, 1971). Nevertheless, severe illness and even fatalities do sometimes occur, so it is wise to know what to do if the unexpected happens. Twenty-five years ago, on 29th June 1975, an apparently perfectly healthy five year old boy, on holiday in the Trossachs in central Scotland, was bitten on the right ankle by an Adder. He was admitted to Glasgow's Royal Hospital for Sick Children within six hours, but died two days later (Reid, 1976; Watson and Harland, 1977). The widespread reporting of this in newspapers (e.g. *Glasgow Herald*, 3rd July 1975) led to an understandable and not unexpected backlash against the Adder in the West of Scotland, and hundreds of Adders were killed over the next few weeks. This appears to have been the last death from an Adder bite reported in Scotland.

### Hospital Treatment

Modern practice is for all cases of Adder-bite, or suspected bite, to be kept in hospital for observation for a minimum of twenty-four hours. In severe cases, hospital treatment, depending on the severity of the effects, consists of counteraction of shock, support of the circulation, treatment of any infection, and anti-tetanus measures.

Just over one hundred years ago Dr. Thomas R. Fraser, a respected Edinburgh physician, published his pioneer work on antivenoms (Fraser, 1896), and from then on it soon became fairly standard practice to administer anti-viper serum as early as possible, but evidence of the possible dangers of such treatment steadily accumulated. The antivenom available was the Pasteur ER antivenom, which was feeble in neutralising *Vipera berus* venom (Reid, 1976) and was also unrefined, which could lead to severe reactions. Indeed, in some patients, reactions to the serum were far worse than the effects of the venom, and unless in very special cases the use of Pasteur antivenom was eventually discontinued, being replaced by cortisone.

The use of cortisone and its derivatives as an adjuvant or substitute for anti-viper venom was apparently first pioneered by Professor A.W. Ariff in the early 1950s, in his completely successful treatment of a series of 52 patients bitten by the extremely deadly Malayan Pit Viper *Agkistrodon rhodostoma* (Ariff, 1955); previously, severely bitten victims had nearly all died, often within 24 hours (Reid, 1963; Gennaro, Anton and Sayre, 1968).

Following this, and before the general availability of Zagreb antivenom, the local application of hydrocortisone preparations to the site of an Adder bite attained fairly widespread hospital use, and, although now virtually abandoned, there was good evidence to suggest that this did appear to reduce any local reaction considerably, so the use of a local hydrocortisone preparation may still have a useful place in first-aid treatment if the possibility of medical help is likely to be long delayed.

In 1969, however, the new Zagreb antivenom, a highly refined and much more potent product, became generally available, and medical opinion now strongly advocates the use of Zagreb antivenom, when required (Theakston and Reid, 1976; Editorial, 1980; Reid, 1980; Malasit, Warrell *et al.*, 1986; Hawley, 1990). There is "now abundant evidence that the benefits of antivenom treatment far outweigh the risks of antivenom reactions" (Warrell, 1996; also see Cederholm and Lennmarken, 1987).

All this, however, does not really concern us here. What does one do immediately, when 'in the field' and possibly several hours away from any medical help?

### **Avoidance of Obsolete Heroic Measures**

The first thing to understand is that many of the old so-called first-aid remedies are complete nonsense, and may actually be downright dangerous. Application of a tourniquet to cut off arterial circulation, incision of the bite, ice packs, and

particularly rubbing of potassium permanganate crystals into the wound, a treatment first described in 1881 (De Lacerda, 1881) and for so long recommended as an immediate first-aid measure, have no place whatever in the treatment of an Adder bite and should be avoided at all costs. This has been widely publicised for well over forty years. "The danger to life arises much more from the heroic methods of treatment so often applied than from the Viper venom" (Manson-Bahr, 1957); "Far more harm is done by obsolete heroic methods of treatment than by masterly inactivity and immobility together with antihistamine drugs" (Morton, 1960). Unfortunately, despite the warnings of Sir Philip Manson-Bahr and Air Vice-Marshal Morton, plus many later writers (e.g. Sutherland, 1984; Proudfoot, 1993), one still occasionally hears of such methods being suggested.

Potassium permanganate, for long the most widely used 'antidote', is by far the worst. In a weak solution it comprises a mild antiseptic dressing, but when crystals are rubbed into a wound, as was so often recommended, it can cause widespread and alarming tissue necrosis. In all fairness to De Lacerda, he made the remarkable original discovery (1881) that potassium permanganate destroyed venom in the test tube, hence its introduction as a hoped-for potentially life-saving remedy, but it was soon realised that it had no neutralising action on venom already present in the body tissues, so its use should have been discontinued last century.

### **Alcohol**

What about alcohol, so often the first prop in a panic situation? Probably no snake-bite remedy has had a more colourful history than alcohol, which, usually in the form of straight whiskey, gained its greatest popularity in the United States of America between 1830 and 1870 (Stephenson, 1838; Thomas, 1855; Minton and Minton, 1971). During the American Civil War (1861-1865) army doctors regularly gave huge quantities of alcohol to rattlesnake-bitten soldiers (e.g. Beattie, 1873; Minton and Minton, 1971). One documented course of treatment consisted of a quart of brandy and a gallon and a half of whiskey over a 36-hour period. The patient apparently made an excellent recovery, and the physician reported in all seriousness that his patient "was seen after recovery looking for another rattlesnake to bite him" (Beattie, 1873). It is important to realise that such reports represented informed medical opinion of the day, and were not attempts at humour.

Nowadays it is easy to criticise such heroic measures, but nearly a century and a half ago alcohol may well have been the only possible remedy readily available, and who can say now that the administration of these huge quantities of alcohol did not

relieve the intense suffering experienced following bites from extremely venomous reptiles, especially during very primitive war conditions?

By the turn of the century most of the medical profession had lost faith in the curative properties of alcohol, although its use as a folk remedy lingered much longer, and in the United States of America it underwent an understandable upsurge of popularity for real or imagined snake-bite during the Prohibition era of 1919-1933.

In cases of Adder-bite in Britain, it is possible to make a sound medical case both for and against the use of a modest amount of alcohol, and although on balance it is probably best avoided, a small quantity of whisky or brandy, if available, could well be helpful for its emergency tranquillising effect in a seriously alarmed patient, especially if he has to be left alone while his companion goes for assistance.

### **Action in the Countryside**

What does one do in the countryside, therefore, if bitten and far away from any medical help?

Have you been Bitten?

Not all Adder strikes are bites, and not all bites inject venom. It is important to realise this. I myself have been struck twice, but fortunately neither strike was a bite, simply an attempt by an accidentally disturbed and frightened snake to get away. It is usually fairly easy to identify a genuine bite - two small puncture wounds about 1.0 cm apart - and if these signs are absent then you probably haven't actually been bitten and all should be well, although if the bite has been at an angle there may only be one puncture wound. If you have genuinely been bitten, however, it is a very different matter.

Several medical text-books contain statements to the effect that probably only 50% of Adder bites inject venom (e.g. Proudfoot, 1994; Warrell, 1996), but I suggest that the proportion may be even less, possibly much less. Clearly it is difficult to obtain any precise figures for this, but there can be no doubt that many Adder 'bites' are not really bites at all or at least do not inject venom. Experienced country-dwellers who have lived in Adder country for most of their lives are usually well aware of this, and, some twenty years ago, extensive enquiries I made amongst country people who had been 'bitten' revealed a surprising number who had never sought medical advice of any kind, if no serious symptoms had developed within a couple of hours of the incident. If you have actually been bitten, however, this reassurance is no great help to you 'in the field', since there is

no immediate way of knowing whether venom has been injected or not. It is therefore safer to assume that venom has been injected, and to act accordingly.

After the initial fright (sometimes severe) try not to panic, but certainly treat the situation as potentially serious. **Stop every other activity at once, and concentrate entirely on getting treatment for the bite. This is the time to get your priorities right.** If the bite turns out to be fairly trivial (as many do) then so much the better, but if not, then the earlier proper treatment is commenced the better will be the outcome. **Don't take any chances. Assume the bite is serious until proved otherwise.**

### Sucking the Wound

Sucking the wound immediately after the bite in an attempt to remove as much of the venom as possible is very often the first, and a completely instinctive, action. The danger here is that if one has any minor cut inside the mouth then, at least in theory, the venom may well be reabsorbed and its action exaggerated. Better to squeeze gently around the wound in an attempt to express any venom near the surface, and benefit can sometimes be obtained from this.

For many years the above has been the standard theoretical medical advice, but what about the response of patients who have been bitten, always assuming that they have even heard of such advice. As a doctor who has been involved with the immediate medical care of many Adder-bitten patients and who has witnessed, or later enquired about, their instant reactions, I would suggest that medical advice has little relevance to the automatic response of patients who have been bitten.

Not every Adder bite, of course, is on a site accessible for sucking (e.g. back of ankle or leg), which also depends greatly on the age and agility of the patient and whether they are alone, but on questioning well over thirty patients with accessible bites, without exception every single one said that their immediate first reaction was to suck the wound "to remove the poison", instantly spitting out the contents, and doing this as vigorously and repeatedly as possible. Even those who had heard and knew of the medical advice not to do so had sucked the wound instantly without pausing to think - a clearly automatic and instinctive reaction in a potentially panic situation. This was particularly the case with the parents of young children who had been bitten - not to suck their child's wound would have seemed to them to be terrible neglect, and there was no thought whatever about any possible personal danger by sucking the wound and mouth absorption, all of which was completely understandable and very laudable. Indeed, I have never come

across any Adder-bitten patient who did not immediately try to suck the wound; so much for medical advice.

What, therefore, are likely to be the consequences, good or bad, of immediately sucking the wound?

The fangs of the Adder usually measure around 0.5 cm in length (Morrison, 1924), depending on the age and size of the snake, and in a genuine bite the depth of penetration of the skin is about 0.2 to 0.3 cm, but the depth of penetration and the amount of venom injected can depend on many circumstances, such as the power and angle of the bite, any intervening clothing, as well as those other factors already mentioned. If the injected venom is fairly near the surface, which may often be the case, then it seems quite likely that sucking could well remove some of the venom, provided any sucking is done immediately, before there is any degree of lymphatic absorption.

What about the theoretical dangers of reabsorption of venom through a mouth abrasion; is there any clinical evidence for this? It seems self-evident that only a finite quantity of venom has been injected into the body, so if some of the venom can be removed by sucking the wound, even if a quantity of this venom were then to be absorbed through a mouth abrasion, the patient would be no worse off with regard to the quantity of venom in the body, and could well be much advantaged. Lymphatic absorption of venom already present in the body following a bite, and potential surface absorption from a mouth abrasion, are two very different things; moreover, dilution of any sucked venom by saliva and the rapid spitting-out would greatly lessen the risk of any mouth abrasion absorption happening at all. Conversely, it must be obvious that if no venom is extracted by sucking the wound, then no venom can enter the mouth, so the theoretical warning about any risk can only apply if some venom has actually been removed from the wound, to the clear benefit of the patient; on balance, therefore, sucking the wound would appear to imply the real possibility of an obvious advantage to the patient.

In simple terms, you can't be in even theoretical danger from mouth absorption unless you have already made a genuine improvement by sucking some of the venom out of the wound, and every patient to whom I spoke considered this mouth risk to be negligible when compared to the possible benefits.

Is there any clinical evidence on which genuine conclusions can be based? Clearly, if one has sucked one's own wound there can be no practical way of assessing any ultimate difference in outcome, good or bad; the only way of assessing any risk is to see what has happened to someone else who has sucked a wound, and this is nearly always a parent who has rushed to the aid of a child. In

twelve such cases, where a parent (or both parents) instantly sucked, and kept on sucking, an Adder-bite in a child, no-one experienced any side-effects of any kind at all (and were actually considerably strengthened mentally by feeling they had done all they could to help). It is only fair to state, however, that I was unable to discover whether any of the parents had previously had any small mouth cuts or abrasions; one mother did volunteer that she often suffered from small mouth ulcers, but could not recollect whether she had any at the time.

I suggest that there is another very real benefit from sucking the wound. Everyone knows about the dangers of 'snake-bite', but to most holiday-makers in the countryside (the group of people most likely to be in real trouble; not local country-dwellers) a bite from an Adder is something which only actually happens to someone else, and the psychological trauma experienced by being unexpectedly bitten can, for some people, be simply devastating. In fifty years of medical practice I have never yet met anyone who was able to treat the experience casually, and one elderly lady patient was so traumatised that she could hardly move and was sure she was going to die quite soon. Parents, even very sensible parents, of bitten children can be particularly vulnerable. Several patients, alone and unable to reach the site of the bite to suck the wound, were further distressed by this, and felt that they were thereby in increased danger. To most people, the immediate sucking of the wound means that "something is being done", and the psychological benefits of this, to counteract the sometimes appalling stress, can be very important. The theory may be one thing, but the practical experience can be another, and possibly not all authors of standard medical text-books may have had direct 'in the field' experience of the stress experienced by patients who have been bitten.

Since one can't change human nature, it seems to me to be far better to accept that immediate sucking of the wound will always happen, a fact of life and an in-built human reaction which will always take place despite any advice given by doctors, and to design and recommend any first-aid measures with this in mind.

### Immediate Treatment

The vast majority of Adder bites recorded in this country are on the hand, foot or lower leg, with very few anywhere else on the body. Adder venom is initially absorbed by the lymphatic system of the body, so the best immediate treatment is to cover the wound with a clean dry dressing, to immobilise the part, and to apply firm support bandaging over and above the bite, to delay lymphatic spread. Medical ideas can certainly change over the years, but the balance of medical



opinion would now appear to favour the view that firm (not tight) support bandaging is helpful.

As already indicated, a great deal depends on the dose of venom and the size of the patient, but in general terms, apart from the immediate local pain and swelling, any really severe general symptoms may take about an hour to develop. Antihistamine tablets should be taken immediately, in full dosage, and since vomiting may develop later as an effect of the venom, this would effectively prevent the ingestion of any further tablets, so the sooner the antihistamines are taken the better. Application of hydrocortisone cream directly to the wound, which is then covered by a dry dressing and a support bandage, has been shown to decrease the local effects of the bite considerably, and this too should be done at once. The limb should be kept dependent and as immobile as possible.

### Assistance

After this immediate treatment, any companion should instantly set off for assistance, to enable any adult victim to be transported to the nearest doctor or hospital. Children should be carried to the nearest place of assistance, but adults are better to remain sitting or lying quietly, preferably in shade if this is available, until help arrives. If possible, small regular drinks of bland fluids should be taken, since if vomiting develops later, and the weather is warm, dehydration may set in quite quickly. What does an individual do if he is by himself and has been bitten on the foot or lower leg? He could well be in considerable difficulties, but after the initial treatment, as described above, he may simply have to move slowly and gently to the nearest place where he can attract attention or get help. Probably the sooner he starts to do this the better, since, in really serious cases, within an hour or less he may be so unwell as to be unable to travel by himself.

### Useful First-Aid Supplies

Country walkers in Adder country would be well advised to carry a simple first-aid kit. Useful antihistamines are Chlorpheniramine (Piriton) for adults, and Promethazine (Phenergan) for children. Phenergan is a particularly useful antihistamine for children since it also has a fairly marked sedative effect which can be very useful in counteracting the severe fright and distress which young children can often experience after being bitten. These two antihistamines can now be purchased without a prescription, but your family doctor should be consulted in advance for advice as to the dosage to be taken in the circumstances. Several preparations of hydrocortisone cream or ointment are now obtainable without a prescription, but you should consult your family doctor for advice as to the best one to use (higher potency steroid preparations are only available on prescription).

## Summary

Considering the extensive use which people now make of the countryside for leisure activities, the incidence of Adder bites is very small indeed, and can be further minimised by taking the sensible precautions previously discussed. In addition, always have your first-aid items - antihistamines, local hydrocortisone application, sterile dressings, and support bandages - ready well in advance; then you probably won't require them. They take up very little room in a rucksack or anorak pocket. As with so many things in life, if you are prepared for the unexpected, then the unexpected seldom happens.

If you are so unfortunate as to be bitten, however, try not to get too alarmed, institute the measures and medication described above, and get help as soon as practically possible; the likelihood of any serious consequences will then be considerably reduced.

## References

- Allen, W. (1902). Bite from severed head of an Adder. *British Medical Journal*, 1902(2): 1584.
- Anon. (1975). Boy's death from Adder bite. *Glasgow Herald*, 3rd July, 1975.
- Ariff, A.W. (1955). Cortigen for snake-bite. *British Medical Journal*, 1955(2): 204-205.
- Arnold, H.R. (1995). *Atlas of Amphibians and Reptiles in Britain*. I.T.E. Research Publication No. 10. London: H.M.S.O.
- Beattie, W.F. (1873). Recovery from the bite of a Rattlesnake. *New York Medical Journal*, 18: 619-620.
- Cederholm, I and Lenmarken, C. (1987). *Vipera berus* bites in children - experience of antivenom treatment. *Acta Paediatrica Scandinavica*, 76: 682-684.
- Colquhoun, J. (1878). *The Moor and the Loch*. Second edition. Edinburgh: Blackwood.
- De Lacerda, J.B. (1881). O permanganato de potassio como antidota da peconha das cobras. [Potassium permanganate as an antidote for snake-bite]. *Comptes Rendus de l'Academie des Sciences*, 93: 466-468.
- Editorial. (1980). Antivenom therapy and reactions. *Lancet*, 1980(1): 1009-1010.
- Fraser, T.R. (1896). Address on immunisation against serpent's venom and the treatment of snake bites with antivenene. *British Medical Journal*, 1896(1): 957-960.
- Gennaro, J.F., Anton, A.H. and Sayre, D.F. (1968). The fine structure of Pit Viper venom. *Comparative Biochemistry and Physiology*, 25: 285-298.

- Gibson, J.A. (1975). *An Atlas of Arran Vertebrates*. Brodick: Arran Nature Centre.
- Gibson, J.A. (1976a). The reptiles and amphibians of the Cumbraes and some other Clyde islands. *Transactions of the Buteshire Natural History Society*, 20: 68-70.
- Gibson, J.A. (1976b). The reptiles and amphibians of the Clyde area. *Western Naturalist*, 5: 53-66.
- Gibson, J.A. (1980a). *An Atlas of Bute and Cumbrae Vertebrates*. Rothesay: Buteshire Natural History Society.
- Gibson, J.A. (1980b). *A Regional Check-List of Clyde Reptiles and Amphibians*. Glasgow: Clyde Area Branch, Scottish Wildlife Trust.
- Gibson, J.A. (1982). The freshwater and terrestrial fauna of the Clyde area. Part V. Reptiles and amphibians of the Clyde faunal area. *Glasgow Naturalist*, 20: 211-227.
- Gibson, J.A. and Colville, D. (1972). The reptiles and amphibians of Kintyre. *Western Naturalist*, 1: 36-41.
- Hawley, A. (1990). Adder bites in the British Army, 1979-1988. *Journal of the Royal Army Medical Corps*, 136: 114-118.
- Hinxman, L.W. (1902). Notes on the Common Adder in the Highlands. *Annals of Scottish Natural History*, 1902: 151-153.
- Lumsden, J. and Brown, A. (1895). *A Guide to the Natural History of Loch Lomond and Neighbourhood*. Glasgow: David Bryce.
- Macintyre, D. (1924). The Adder in Argyllshire. *Chambers' Journal*, August 1924: 516-519.
- Malasit, P., Warrell, D.A. *et al.* (1986). Prediction, prevention, and mechanism of early (anaphylactic) antivenom reactions in victims of snake bites. *British Medical Journal*, 292: 17-20.
- Manson-Bahr, P. (1957). Snake-bite. *British Medical Journal*, 1957(2): 468-469.
- Minton, S.A. and Minton, M.R. (1971). *Venomous Reptiles*. London: Allen and Unwin.
- Moore, R.S. (1988). Second-degree heart block associated with envenomation by *Vipera berus*. *Archives of Emergency Medicine*, 5: 116-118.
- Morrison, N. (1924). *The Life-Story of the Adder*. Paisley: Alexander Gardner.
- Morrison, N. (1929). Sea-swimming Adders. *Scotsman*, 7th December 1929.
- Morrison, N. (1937). Unusual risers to the fly; an angler's unusual experience. *Scotsman*, 5th June 1937.
- Morrison, N. (1937). *My Story*. Inverness: Highland News.

- Morton, T.C. (1960). Adder-bites in Cornwall. *British Medical Journal*, **1960**(2): 373-376.
- Proudfoot, A.T. (1993). *Acute Poisoning. Diagnosis and Management*. Second edition. Oxford: Butterworth-Heinemann.
- Proudfoot, A.T. (1994). Venomous snakes. Adder envenomation. In: *Environmental Medical Emergencies* (Ed. D.J. Steedman), pages 189-193. Oxford: Oxford University Press.
- Reid, H.A. (1963). Epidemiology of snake bite in North Malaya. *British Medical Journal*, **1963**(1): 992-997.
- Reid, H.A. (1976). Adder bites in Britain. *British Medical Journal*, **1976**(2): 153-156.
- Reid, H.A. (1980). Antivenom reactions and efficacy. *Lancet*, **1980**(1): 1024-1025.
- Smith, M.A. (1964). *The British Amphibians and Reptiles*. Third edition. New Naturalist series. London: Collins.
- Smith, M.A. and Hindle, E. (1931). Experiments with the venom of *Laticauda*, *Pseudechis* and *Trimeresurus* species. *Transactions of the Royal Society of Medicine*, **25**: 115-120.
- Steedman, D.J. (1994). *Environmental Medical Emergencies*. Oxford Handbooks in Emergency Medicine, No. 10. Oxford: Oxford University Press.
- Stephenson, J. (1838). *Medical Zoology*. London: John Churchill.
- Stuart, J. (1793). Parish of Luss. *Statistical Account of Scotland*, **17**: 238-271.
- Sutherland, S.K. (1984). Management of venomous bites and stings. *Medicine International*, **2**: 391-396.
- Theakston, R.D.G. and Reid, H.A. (1976). Effectiveness of Zagreb antivenom against envenoming by the Adder, *Vipera berus*. *Lancet*, **1976**(2): 121-123.
- Thomas, J.R. (1855). Snake bites - treated by brandy. *North-Western Medical and Surgical Journal*, **12**: 305-306.
- Warrell, D.A. (1979). Bites and stings by venomous animals in Britain. *Prescribers' Journal*, **19**(6): 190-199.
- Warrell, D.A. (1996). Venoms, toxins, and poisons of animals and plants: venomous snakes. In: *Oxford Textbook of Medicine* (Ed. D.J. Weatherall, J.G.G. Ledingham and D.A. Warrell), third edition. Volume One: 1126-1140. Oxford: Oxford University Press.
- Watson, A.A. and Harland, W.A. (1977). Adder bite fatality in Scotland. *Medicine, Science and the Law*, **17**: 190-192.

## POSSIBLE MONGOOSE ON THE ISLAND OF BUTE: AN OLD RECORD

By J.A. GIBSON

*Buteshire Natural History Society*

During the past few years I have been steadily searching through the first hundred years of the *Buteman* newspaper (established 1854) in the hope of discovering some additional interesting items on the history of Bute vertebrates. The last fifty years of the 19th century saw the introduction of some exotic mammals, e.g. Wallabies and Beavers, to the island by the Third Marquess of Bute, and this was followed by the introduction of several varieties of foreign Pheasants, such as Gold and Silver Pheasants (McWilliam, 1927), some of which were certainly still in existence up till the start of the first world war, with the Golden Pheasant "more than holding its own" until the early 1930s.

There have always been vague suggestions that some other exotic species might also have been introduced, species which did not receive widespread publicity, and although I have no firm evidence for this there was always the possibility that something out of the ordinary might have been briefly reported at the time in the local newspaper.

Searching the columns of any local newspaper in the hope of discovering some interesting natural history items is a wearisome and usually unrewarding task, but just occasionally one finds something unusual, and in the *Buteman* for Friday 5th December 1900 I was fortunate enough to discover the undernoted paragraph:

"That well-known trapper, Mr. Robert Morrison, had the luck to trap on Saturday last, at Plan Farm, south end of Bute, an animal certainly not native of this country. It is believed to be a mongoose, and was caught in a trap set in a rabbit hole".

So far I have been unable to trace any later reference to this occurrence, but the Mongoose *Herpestes ichneumon* is a fairly distinctive creature and there is no real reason to doubt the identification, even although no confirmatory details were given. At first, it might reasonably be assumed that this occurrence resulted from another introduction, as yet unrecorded, by the Bute family, but the Bute family Archives were very thoroughly searched by the late Marquess and myself when we were endeavouring to obtain as much information as possible about the Wallaby

and Beaver introductions, and nowhere in the Archives is there any indication at all that the Mongoose was ever introduced.

There is, however, a much more likely explanation. In my 1976 account of the mammals of the Clyde area (Gibson, 1976) I reported the old records of an adult Mongoose trapped at Blanefield, West Stirlingshire, on 1st June 1928, and five weeks later a barely half-grown specimen trapped at Duntocher, Dunbartonshire. At that time, the origin of these animals was unknown, but eight years later, by the time of the publication of my separate account of the mammals of Dunbartonshire (Gibson, 1984), my colleague Mr. John Mitchell had discovered that "in the 1920s Mongooses were kept by at least one Dunbartonshire bakery, since their mousing ability was considered to be greatly superior to that of cats" (Mitchell, 1983). Later investigation showed that this practice was more widespread, in several parts of the country, than had previously been realised.

It seems most likely, therefore, that the 1900 Bute Mongoose was an escape from a local bakery or some other establishment, but it is clearly desirable to draw attention to this occurrence in the hope that some other records may come to light, and needless to say, I shall be most grateful to receive any additional information.

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### References

- Gibson, J.A. (1970-76-80-90-2000). The mammals of the Island of Bute; and supplementary notes. *Transactions of the Buteshire Natural History Society*, 18: 5-20; 20: 78-80; 21: 93-95; 23: 65-79; 25: in press.
- Gibson, J.A. (1976). Land mammals of the Clyde faunal area. *Glasgow Naturalist*, 19: 259-301.
- Gibson, J.A. (1984). The mammals of Dunbartonshire. *West Dunbartonshire Naturalist Report*, 6: 11-34.
- McWilliam, J.M. (1927). *The Birds of the Island of Bute*. London: Witherby.
- Mitchell, J. (1983). Strange beasts on the Bonny Banks. *Scottish Wildlife*, 19(3): 20-24.

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